

【Sequence Listing】

<110> Lifenza Co., Ltd.
 <120> PROTEIN WITH ACTIVITY OF HYDROLYZING DEXTRAN, STARCH, MUTAN,
 5 INULIN AND LEVANN, GENE ENCODING THE SAME, CELL EXPRESSING THE
 SAME, AND PRODUCTION METHOD THEREOF
 <150> KR2004-0006185
 <151> - 2004-01-30
 10 <160> 4
 <170> KopatentIn 1.71
 15 <210> 1
 <211> 608
 <212> PRT
 <213> Artificial Sequence
 20 <220>
 <223> S. cerevisiae/pYES2-LSD1
 <400> 1
 25 Met Thr Leu Ile Tyr Val Pro Ser Ile Phe Thr Met Val Pro Ser Ile
 1 5 10 15
 Thr Arg Ile Val Leu Val Asn Ile Leu Leu Ala Thr Leu Val Leu Gly
 20 25 30
 30 Ala Ala Val Leu Pro Arg Asp Asn Arg Thr Val Cys Gly Ser Gln Leu
 35 40 45
 Cys Thr Trp Trp His Asp Ser Gly Glu Ile Asn Thr Gly Thr Pro Val
 35 50 55 60
 Gln Ala Gly Asn Val Arg Gln Ser Arg Lys Tyr Ser Val His Val Ser

65 70 75 80
 Leu Ala Asp Arg Asn Gln Phe Tyr Asp Ser Phe Val Tyr Glu Ser Ile
 85 90 95
 5 Pro Arg Asn Gly Asn Gly Arg Ile Tyr Ser Pro Thr Asp Pro Pro Asn
 100 105 110
 Ser Asn Thr Leu Asn Ser Ser Ile Asp Asp Gly Ile Ser Ile Glu Pro
 10 115 120 125
 Ser Leu Gly Ile Asn Met Ala Trp Ser Gln Phe Glu Tyr Arg Arg Asp
 130 135 140
 15 Val Asp Ile Lys Ile Thr Thr Ile Asp Gly Ser Ile Leu Asp Gly Pro
 145 150 155 160
 Leu Asp Ile Val Ile Arg Pro Thr Ser Val Lys Tyr Ser Val Lys Arg
 165 170 175
 20 Cys Val Gly Gly Ile Ile Ile Arg Val Pro Tyr Asp Pro Asn Gly Arg
 180 185 190
 Lys Phe Ser Val Glu Leu Lys Ser Asp Leu Tyr Ser Tyr Leu Ser Asp
 25 195 200 205
 Gly Ser Gln Tyr Val Thr Ser Gly Gly Ser Val Val Gly Val Glu Pro
 210 215 220
 30 Lys Asn Ala Leu Val Ile Phe Ala Ser Pro Phe Leu Pro Arg Asp Met
 225 230 235 240
 Val Pro His Met Thr Pro His Asp Thr Gln Thr Met Lys Pro Gly Pro
 245 250 255
 35 Ile Asn Asn Gly Asp Trp Gly Ser Lys Pro Ile Leu Tyr Phe Pro Pro
 260 265 270

Gly Val Tyr Trp Met Asn Glu Asp Thr Ser Gly Asn Pro Gly Lys Leu
 275 280 285

5 Gly Ser Asn His Met Arg Leu Asp Pro Asn Thr Tyr Trp Val His Leu
 290 295 300

Ala Pro Gly Ala Tyr Val Lys Gly Ala Ile Glu Tyr Phe Thr Lys Gln
 305 — 310 315 320

10 Asn Phe Tyr Ala Thr Gly His Gly Val Leu Ser Gly Glu Asn Tyr Val
 325 330 335

Tyr Gln Ala Asn Ala Ala Asp Asn Tyr Tyr Ala Val Lys Ser Asp Gly
 15 340 345 350

Thr Ser Leu Arg Met Trp Trp His Asn Asn Leu Gly Gly Gly Gln Thr
 355 360 365

20 Trp Phe Cys Met Gly Pro Thr Ile Asn Ala Pro Pro Phe Asn Thr Met
 370 375 380

Asp Phe Asn Gly Asn Ser Asn Ile Ser Ser Arg Ile Ser Asp Tyr Lys
 385 390 395 400

25 Gln Val Gly Ala Tyr Phe Phe Gln Thr Asp Gly Pro Glu Ile Tyr Glu
 405 410 415

Asp Ser Val Val His Asp Val Phe Trp His Val Asn Asp Asp Ala Ile
 30 420 425 430

Lys Thr Tyr Tyr Ser Gly Ala Ser Ile Ser Arg Ala Thr Ile Trp Lys
 435 440 445

35 Cys His Asn Asp Pro Ile Ile Gln Met Gly Trp Thr Ser Arg Asn Leu
 450 455 460

Thr Gly Ile Ser Ile Asp Asn Leu His Val Ile His Thr Arg Tyr Phe
 465 470 475 480

Lys Ser Glu Thr Val Val Pro Ser Ala Ile Ile Gly Ala Ser Pro Phe
 5 485 490 495

Tyr Ala Ser Gly Met Thr Val Asp Pro Ser Glu Ser Ile Ser Met Thr
 500 505 510

10 Ile Ser Asn Val Val Cys Glu Gly Leu Cys Pro Ser Leu Phe Arg Ile
 515 520 525

Thr Pro Leu Gln Ser Tyr Asn Asn Leu Val Val Lys Asn Val Ala Phe
 530 535 540

15 Pro Asp Gly Leu Gln Thr Asn Pro Ile Gly Ile Gly Glu Ser Ile Ile
 545 550 555 560

Pro Ala Ala Ser Gly Cys Thr Met Asp Leu Glu Ile Thr Asn Trp Thr
 20 565 570 575

Val Lys Gly Gln Lys Val Thr Met Gln Asn Phe Gln Ser Gly Ser Leu
 580 585 590

25 Gly Gln Phe Asp Ile Asp Gly Ser Tyr Trp Gly Gln Trp Ser Ile Asn
 595 600 605

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<210> 2
 <211> 2052
 <212> DNA
 <213> Artificial Sequence

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<220>
 <223> S. cerevisiae/pYLS01

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 cgacgttggg tttgggagct gcagtccttc cagagacaa cagaactgtt tgcgggagtc 180
 10 aactctgcac atggtggcac gactcggcgc agataaacac cggctactct gtacaggcag 240
 gaaacgttcg acaatcccg aagtactctg tccatgtgag cctggcagac cgtaaccaat 300
 tctacgactc tttogtatat gaatcgatac ctaggaacgg caatggcaga atttattctc 360
 15 ccaccgaccc acctaacgc aatacattga atagtagcat tgacgacggt atatcaatcg 420
 aaccatctct cggcatcaac atggcttggg ccagttcga atatagacga gatgtcgaca 480
 20 ttaagattac tacaatcgat ggctcaatat tggatggccc tttggacatt gttattcggc 540
 cgacttctgt taagtactca gtcaaaagat gtgtgggtgg tatcattatt agagtccctt 600
 atgatcccaa tggtcgaaaa ttctctgttg agttaagag tgacctttac agttacctct 660
 25 ccgacgggtc gcaatatgtg acctctggag ggagcgttgt tgggtgtggag ccaaaaaatg 720
 ccctggatgat ctttgccagc cttttcttgc cacgggatat ggttctcat atgacaccac 780
 30 acgacacca gacaatgaag cggggcccaa tcaataatgg ggactggggg tcaaagccta 840
 tactctactt cccgcctggc gtatactgga tgaacgagga tacctctggt aaccccgga 900
 agctcggctc aaatcatatg cggctggatc ccaataccta ctgggtccat ctagccccag 960
 35 gagcctatgt gaaaggagcc attgagtatt tcacgaagca aaatttctat gcaacgggtc 1020

	atggcggttct ctcaggtgag aactatgttt atcaggccaa tgcagctgat aactactatg	1080
	ccgtcaagag tgatggcaca agcttgagaa tgtggtggca caacaacctt ggaggcggtc	1140
5	aaacatgggtt ttgcatgggg cccaccatta atgcaccgcc gttaaatacg atggacttca	1200
	acggaaactc taatatitcc agccggatta gtgactataa gcaggttggc gcttatittt	1260
	tcaaacaga oggaccggag atctacgagg acagtgttgt ccatgacgtc ttctggcatg	1320
10	ttaatgatga tgccatcaag acatattatt cgggagcttc aatttcacga gcaaccatct	1380
	ggaagtgtca caatgaccog atcatacaga tgggctggac gtcacgaaat ctcaccggaa	1440
15	tcagcattga taacctgcac gtcatccaca cgagatattt caaatctgaa acagtggttc	1500
	cttcagcaat cattggagcg tctccattct acgcaagtgg aatgactgtt gatcccagcg	1560
	agtcacacag catgaccatc tctaacgtgg tgtgtgaggg tctatgcccc tcactgttcc	1620
20	gtatcactcc gcttcagagc tacaacaacc ttgttgtcaa gaacgtggcc tttcccgatg	1680
	gactgcagac aaatccaatc ggaataggag agagcattat accagcagct tccggctgta	1740
25	caatggactt ggaaatcaca aactggaccg tcaaaggaca aaaagtcacc atgcaaaact	1800
	ttcagtcogg gtcacttggc cagttcgata tcgatggttc atactgggtt caatgggtcca	1860
	taactaaag ctattcccat tcacctgagt atttcgtgg gttcaatgag ttcttggtac	1920
30	tgatggggcc ctgtgtagtg gtaaaagtag agggacttgt cctcgccggg cgccaaggaa	1980
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35	aaaaaaaaaa aa	2052

<210> 3
<211> 18
<212> DNA
<213> Artificial Sequence

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<220>
<223> L. starkeyi DX-F primer(sense)

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<400> 3
gtcccttgag ctccaac 18

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<210> 4
<211> 23
<212> DNA
<213> Artificial Sequence

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<220>
<223> L. starkeyi DX-R primer(antisense)

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tcaactagaa ttcatgaact tcc 23

25